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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|-----------------------------|---------------------|------------------|
| 10/717,497 | 11/21/2003 | Jean-Francois Saint Etienne | 245507US41X DIV | 7606 |

22850 7590 07/09/2007
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| EXAMINER | |
| CHOU, ALBERT T | |

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| ART UNIT | PAPER NUMBER |
| 2616 | |

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| NOTIFICATION DATE | DELIVERY MODE |
| 07/09/2007 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|------------------------------|--------------------------------------|---------------------------------------------|--|
| Office Action Summary | Application No. 10/717,497 | Applicant(s) SAINT ETIENNE ET AL. | |
| | Examiner Albert T. Chou | Art Unit 2616 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 10/287,959. Although the conflicting claims are not identical, they are not patentably distinct from each other.

For example, Claims 1 and 10 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/287,959. The only difference between the two claims is the following:

Claims 1 and 10 of the present application broadens the scope of claim 1 copending Application No. 10/287,959, by omitting the features of

(I) two independent elementary networks each comprising at least two switches, which are interconnected to each other and each connected to at least one subscriber equipment;

(II) each equipment comprising at least two physical interfaces;

(III) in transmission of a frame by a source subscriber equipment: addition of a numbering field in each transmitted frame, to insert a frame number so that each frame can be identified in time. Send this frame on the concerned elementary network RE1 and RE2; and

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(IV) in reception of a frame by a destination subscriber equipment: storage of the received frame number, acceptance of this frame only if its number has not already been received.

However, it would have been obvious to one of ordinary skill in the art to eliminate unnecessary features from the invention of claim 1 of copending Application No. 10/287,959. The motivation would have been to provide a simpler process of implementing a redundant switched full-duplex Ethernet type communication network.

Similarly, claims 2-9 and 11-18 are rejected on the same ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2-9 of copending Application No. 10/287,959.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

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said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 102(e) as being unpatentable over US Patent No. No. 6,282,669 to Imanaka et al. (hereinafter "Imanaka") in view of US Patent No. 6,188,689 to Katsube et al. (hereinafter "Katsube").

Regarding claims 1 and 10, Imanaka teaches a switched full-duplex Ethernet type communication network **[Fig. 1]** comprising:

at least two independent elementary networks **[Fig. 1; System-A & System-B]**, each elementary network comprising at least one source subscriber equipment **[Fig. 1; Node 10]** and at least one destination subscriber equipment **[Fig. 1; Node 20]**;

at least one switch to connect the at least two independent elementary network to each other through the at least one physical link **[Fig. 1; a connection between Node 10 and System-A Communication Line 1 & System-B Communication Line 2]**, each equipment being connected to each of these elementary networks **[Fig. 1; Nodes 10 & 20 both connect to System-A & System-B]**; and

a control configured to perform a frame by frame redundancy on each elementary network **[Figs. 1 & 3; Data are, controlled by Control Section 16, concurrently transmitted from Node 10 to both System-A and System-B; col. 3, lines 1-45]**.

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Imanaka does not expressly teach the source and the destination subscriber equipment connected each other through at least one switch.

Katsube teaches a network, in which the source **[Fig. 5(a); Sending Host 311]** and the destination subscriber equipment **[Fig. 5(a); Receiving Host 313 or 312]** are connected each other through at least one switch **[Fig. 5(a); e.g. Router 341]**.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to include a router/switch in a redundant Ethernet communication network system.

The motivation for combining the reference teachings would be to enable a subscriber equipment in a local redundant Ethernet communication network system to communicate a remote subscriber equipment residing in another redundant Ethernet communication network system in order to achieve network and/or transmission data redundancy.

Regarding claims 2 and 11, Imanaka teaches a network, in which there are two elementary networks **[Fig. 1; System-A & System-B]**.

Regarding claims 3 and 12, Imanaka teaches the control performs the frame by frame redundancy by being further configured to, in transmission:

add a numbering field in each transmitted frame **[Fig. 2; Data Identifier 7; col. 3, lines 15-29]**, to insert a frame number **[Fig. 4; a unique, consecutive sequence number; col. 3, lines 15-29]**; and

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send the frame with the inserted frame member on each of the elementary networks **[Figs. 1 & 3; Data are concurrently transmitted from Node 10 to both System-A and System-B; col. 3, lines 30-45].**

Regarding claims 4 and 13, Imanaka teaches the control performs the frame by frame redundancy by being further configured to, in reception:

store the received frame number and accept of the frame only if its frame number has not already been received **[Fig. 4; steps 113, 114 & 116; col. 4, lines 1-58].**

Regarding claims 5 and 14, Imanaka teaches the control is further configured to accept a frame only if it takes place within a given time window **[Figs. 5 & 6; steps 132-134 & steps 136-138; col. 6, lines 30-64].**

Regarding claims 6, 7, 15 and 16, Imanaka teaches each limitation set forth in its parent claim.

Imanaka does not expressly teaches a virtual link (VL) concept is used, which is a conceptual view of a link from a source equipment to at least one destination equipment and a virtual link number is accepted in the numbering field.

Katsube teaches a virtual link (VL) concept is used, which is a conceptual view of a link from a source equipment to at least one destination equipment **[col. 7, lines 18-26]** and a virtual link number is accepted in the numbering field

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[Figs. 4(a), 4(b) & 9; Dedicated Virtual Link Indicator DVLI is accepted Datalink header].

It would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the virtual link concept as taught by Katsube and implement to Imanaka's redundant Ethernet communication network system.

The motivation for combining the reference teachings would be to enable a subscriber equipment in a local redundant Ethernet communication network system to communicate a remote subscriber equipment residing in another redundant Ethernet communication network system using the virtual link concept so that each virtual link will not be disturbed by other links which share the same physical link along its route in the network.

Regarding claims 8 and 17, Imanaka teaches each limitation set forth in its parent claim.

Imanaka does not expressly teaches a virtual link (VL) is characterized by: a transfer direction, the virtual link being single directional, a source equipment, one or several items of destination equipment, a fixed passband, a maximum guaranteed time for transfer of packets from a source equipment to a destination equipment, a fixed path on the network and a unique identifier.

Katsube teaches a virtual link (VL) is characterized by:

a transfer direction, the virtual link being single directional **[Figs. 5(a), 11-13; e.g. Input DVLI=x1, Output DVLI=y1; col. 10, lines 53-67];**

a source equipment **[Figs. 5(a); Sending Host 311];**

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one or several destination equipment **[Figs. 5(a); Receiving Host 312];**
a fixed passband, a guaranteed maximum time for transfer of packets
from a source equipment to a destination equipment **[Figs. 10 & 14b; Specify a
bandwidth or QoS for each IP flow corresponding to each DVL by
allocating an ATM-VC and reserving the bandwidth for the ATM-VC; col. 14,
lines 3-8],** regardless of the behavior of the rest of the network, each virtual link
having its own transfer time **[Figs. 11 & 15; each virtual link has its own QoS
or priority];**

a fixed path on the network **[Figs. 5(a), 11-13; e.g. a fixed path from
Sending Host 311 to Receiving Host 312 via DVLI=x1, DVLI=y1, DVLI=z1 &
DVLI=w1];** and

a unique identifier **[Figs. 5(a), 11-13; e.g. Input DVLI=x1, Output
DVLI=y1; col. 10, lines 53-67].**

It would have been obvious to a person of ordinary skill in the art at the
time of the invention to apply the virtual link concept as taught by Katsube and
implement to Imanaka's redundant Ethernet communication network system.

The motivation for combining the reference teachings would be to enable
a subscriber equipment in a local redundant Ethernet communication network
system to communicate a remote subscriber equipment residing in another
redundant Ethernet communication network system using the virtual link concept
so that each virtual link will not be disturbed by other links which share the same
physical link along its route in the network.

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Regarding claims 9 and 18, Imanaka teaches a network that is used for implementation of a redundant switched full-duplex Ethernet type communication network in avionics **[It is obvious that a redundant switched full-duplex Ethernet-type communication can be deployed in avionics since the technology is obviously not environment dependent].**

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent Application Pub. No. US 2006/0107108 A1 by Geng et al. disclose "Service Clusters And Method In A Processing System With Failover Capacity"
- US Patent No. 5,379,278 to Safadi discloses "Method Of Automatic Communications Recovery"
- US Patent No. 4,780,869 to Engdahl et al. disclose "Local Area Network Redundancy System"
- US Patent No. 6,766,482 to Yip et al. disclose "Ethernet Automatic Protection Switching"

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert T. Chou whose telephone number is 571-272-6045. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham, can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Albert T. Chou

June 12, 2007

AC


CHI PHAM
SUPERVISORY PATENT EXAMINER

7/2/07